

EXECUTIVE

WORKSHOP

Texas Municipal Retirement System

Investment Overview

Presented by

T.J. Carlson, Chief Investment Officer

Investment Overview

- Performance and Asset Allocation
- Public Equities
- Fixed Income
- Real Estate
- Real Return
- Absolute Return
- Private Equity
- Compliance
- Risk Management

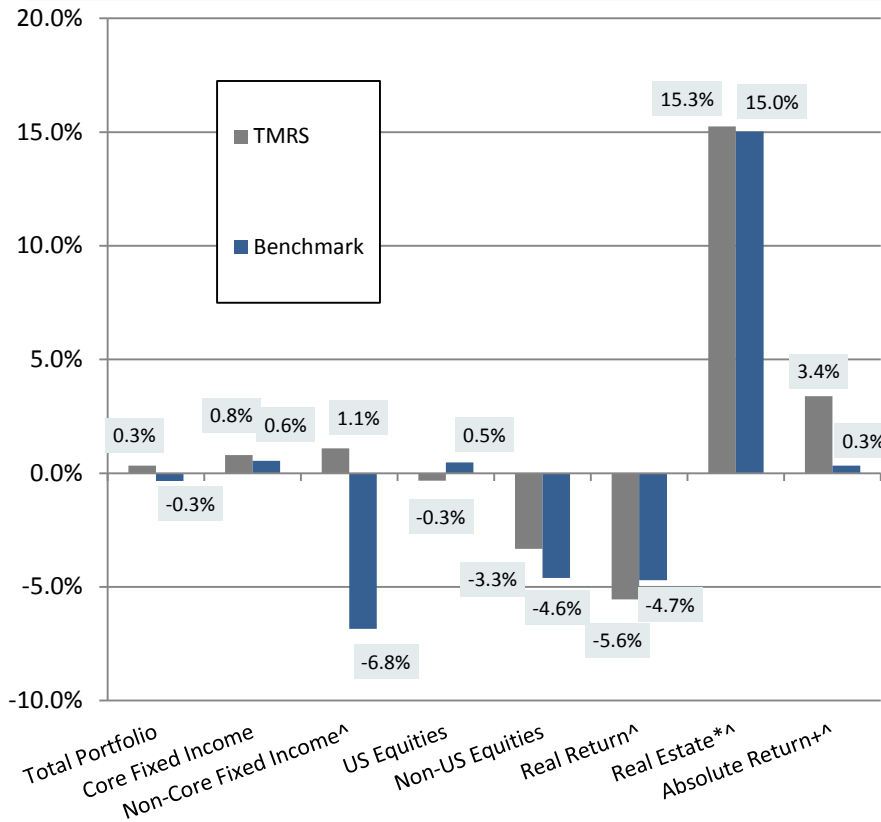
Performance and Asset Allocation

TMRS INVESTMENT PORTFOLIO

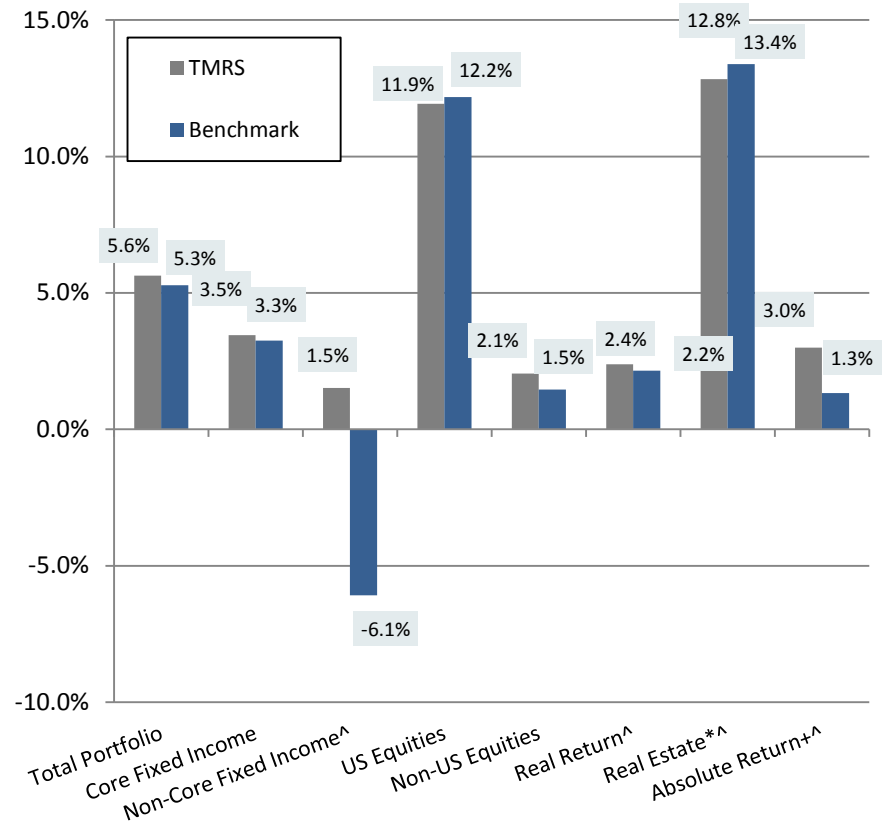
Gross Performance By Asset Class

December 2015

1 Year Performance



5 Year Performance



Gross returns

*Real Estate return as of prior quarter end (real estate returns are available on a quarterly basis only)

+Absolute Return returns are a mix of gross and net.

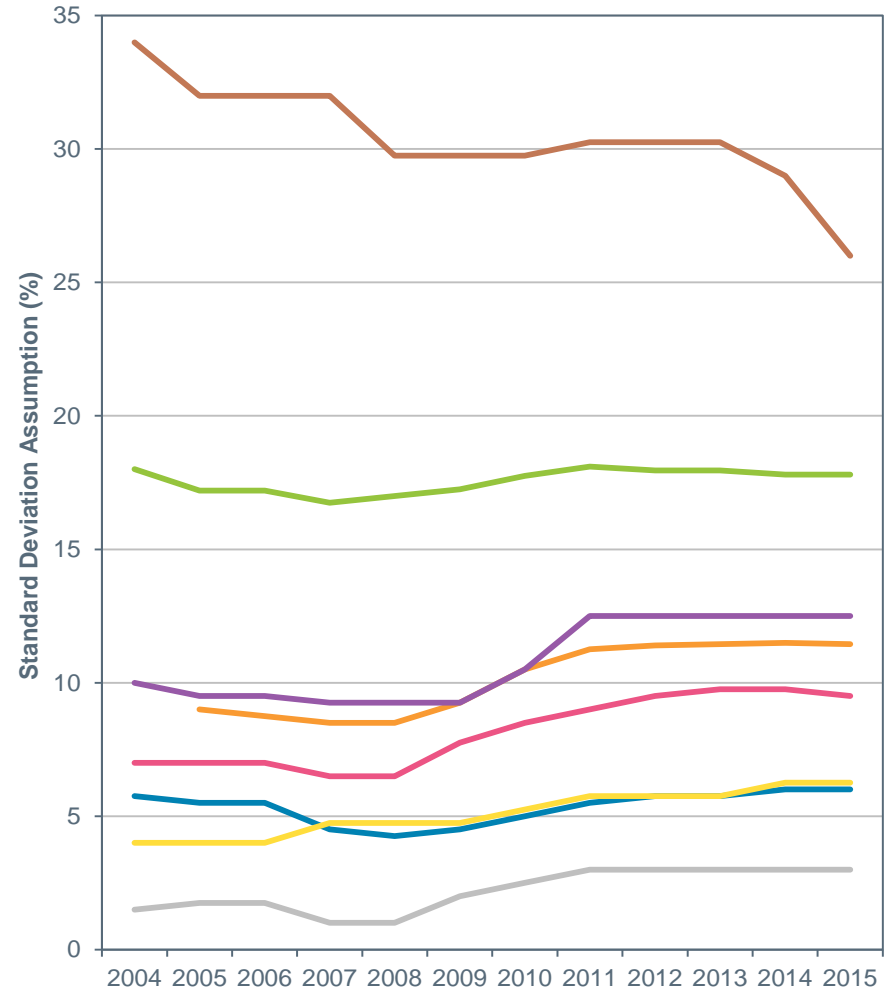
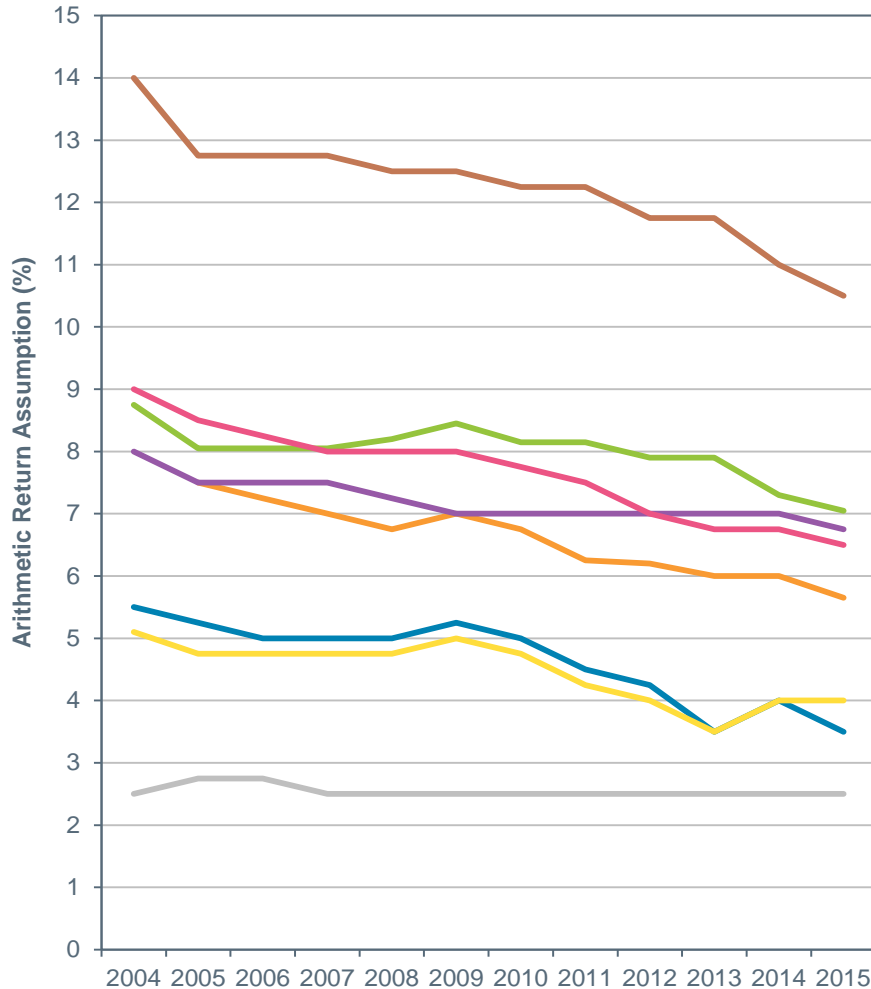
[^]Non-Core Fixed Income, Real Return, Real Estate, Absolute Return performance are the annualized return since inception, given their performance history are less than 5 years

Source: State Street Investment Analytics

Asset Allocation Inputs

Historical Trend of Capital Market Assumptions

- Based on RVK assumptions over the last ten years

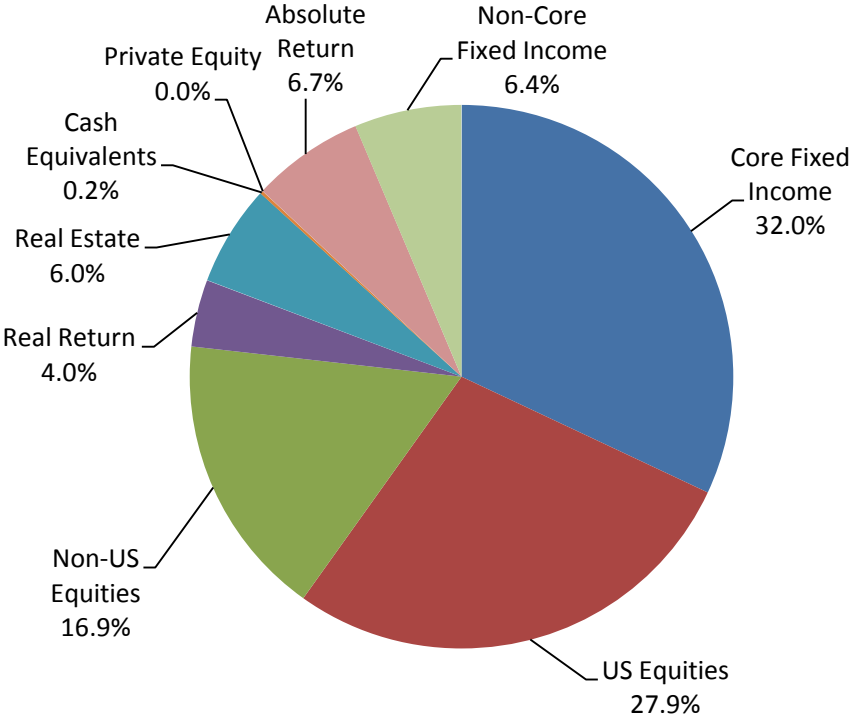


— Broad US Equity — Int. Duration Fixed Income — TIPS
— Core Real Estate — Diversified Hedge Funds — Private Equity

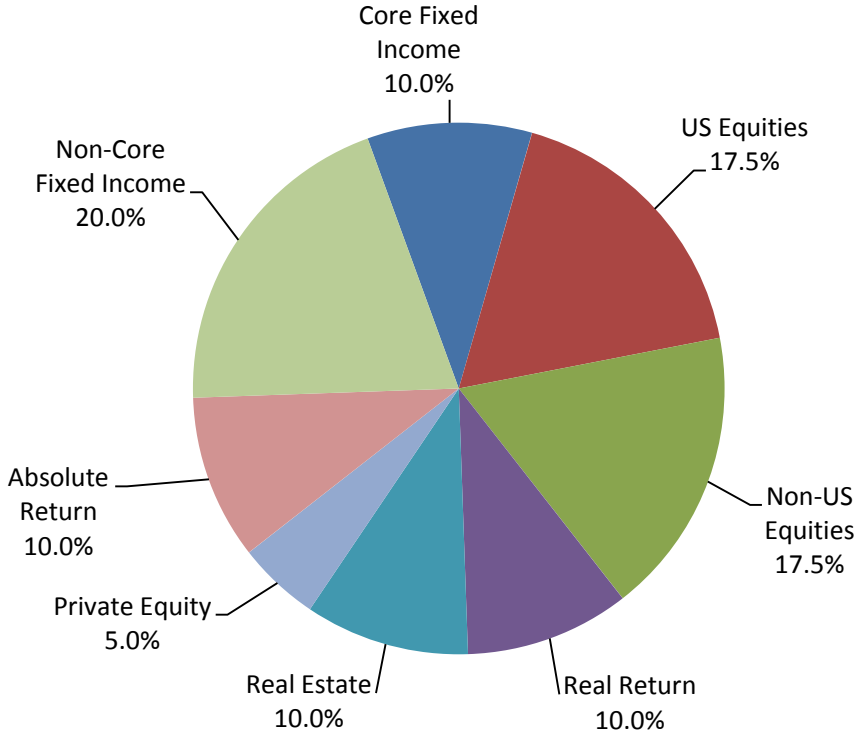
TMRS INVESTMENT PORTFOLIO

Asset Allocation

Allocation as of 12/31/15



Target Allocation Adopted July 2015



Total Market Value: \$23.6 Billion

*Cash equivalents allocation represents unallocated invested cash equivalent instruments.
NOTE: The sum of individual asset class allocations may not add up to 100% due to rounding.
Source: State Street Investment Analytics

Public Equities

Public Equities

Asset Class Overview

US Equity

- Objective
 - Intended to provide capital appreciation and is structured using a Core-Satellite Approach with the overall objective of exceeding its benchmark performance net of fees over rolling five year periods.
 - Satellite strategies (Active and Rules-Based strategies with an active component) are expected to add excess return within established tracking error limits and will meet quality, diversification, and liquidity guidelines as specified in the Managers' contracts.

International Equity

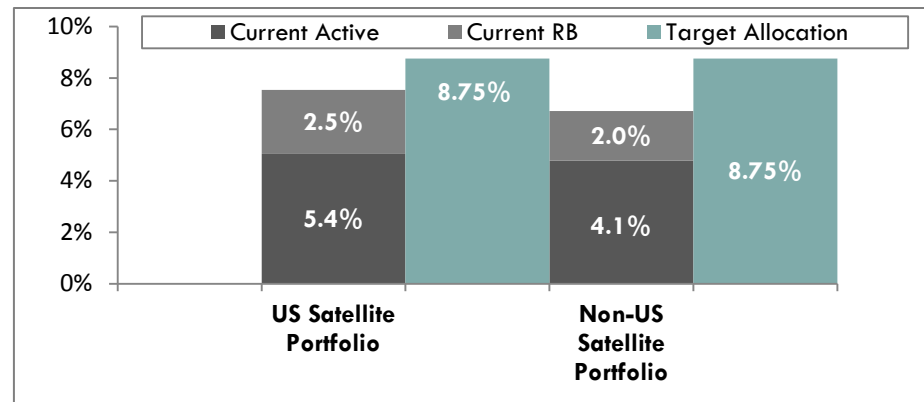
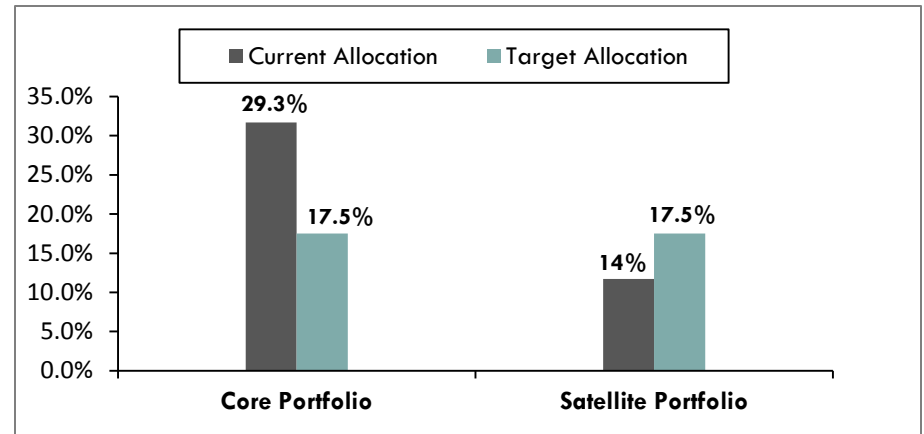
- Objective
 - Intended to provide capital appreciation and diversification, and is structured using a Core-Satellite Approach with the overall objective of exceeding its benchmark performance net of fees over rolling five year periods.
 - Satellite strategies (Active and Rules-Based strategies with an active component) are expected to add excess return within established tracking error limits and will meet quality, diversification, and liquidity guidelines as specified in the Managers' contracts or otherwise agreed to in writing between TMRS and the Investment Manager.

Core/Satellite Structure Allocation

% of Total Fund as of 12/31/2015

CORE Portfolio Managers	Market Value	% of Total Portfolio
US CORE EQUITY: NTGI Russell 3000	4,700,744,318	19.9%
NON-US CORE EQUITY: NTGI ACW ex. US IMI	2,327,133,008	9.4%
TOTAL:	7,027,877,326	29.3%

SATELLITE Portfolio Managers	Market Value	% of Total Portfolio
US RULES-BASED EQUITY:	590,559,621	2.5%
US ACTIVE EQUITY:	1,271,457,253	5.4%
NON-US RULES-BASED EQUITY:	462,803,393	2.0%
NON-US ACTIVE EQUITY:	1,196,451,955	4.1%
TOTAL:	3,521,272,222	14.0%



NOTE: Percentages may not be exact due to rounding

Fixed Income

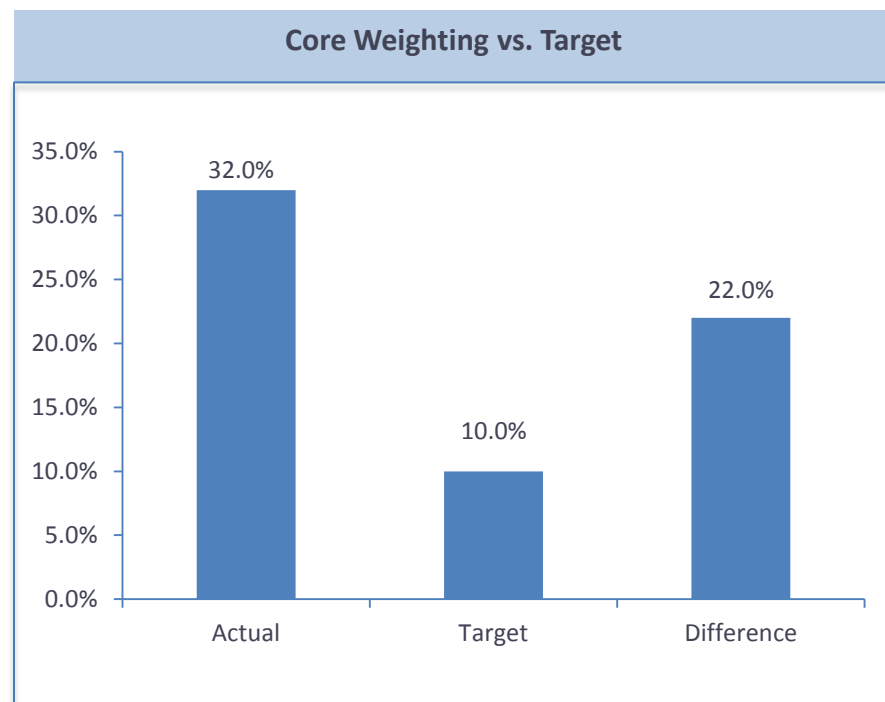
Core Fixed Income Asset Class Overview

- US Core Fixed Income
 - Objective
 - Purpose is to enhance total return and provide diversification to the overall investment portfolio.
 - US Core performance objective is to exceed the Barclay's US Aggregate Bond Index net of fees and rank above the median manager in peer universe, over rolling 5-year periods and be within tracking errors as specified in the manager contracts.
 - US Core Plus performance objective is to exceed Barclay's Aggregate Index by 35 bps net of fees with a maximum expected tracking error of 150 bps and rank above the median manager in peer universe, over rolling 5-year periods.
 - Investment Philosophy- BlackRock
 - Top down determination of investment themes are based on bottom-up inputs. Investment themes establish parameters for sector, sub-sector and security selection. Macro overlays for duration and volatility are viewed as a separate sector and used opportunistically.
 - Investment Philosophy- PIMCO
 - PIMCO's investment philosophy is driven by diversifying strategies and focuses on longer term secular (3-5 year) trends.
 - Seek to add value through top down strategies including interest rate exposures, duration, volatility, yield curve positioning and sector rotation.
 - Employ "bottom-up" strategies through in depth credit analysis and specific security selection.

Core Fixed Income Allocation

As of December 31, 2015

Mandate	Market Value	% of Total Fund
CORE FIXED INCOME		
BlackRock	\$5,499,067,808	23.33%
PIMCO	\$2,042,385,767	8.66%
TOTAL	\$7,541,453,574	31.99%



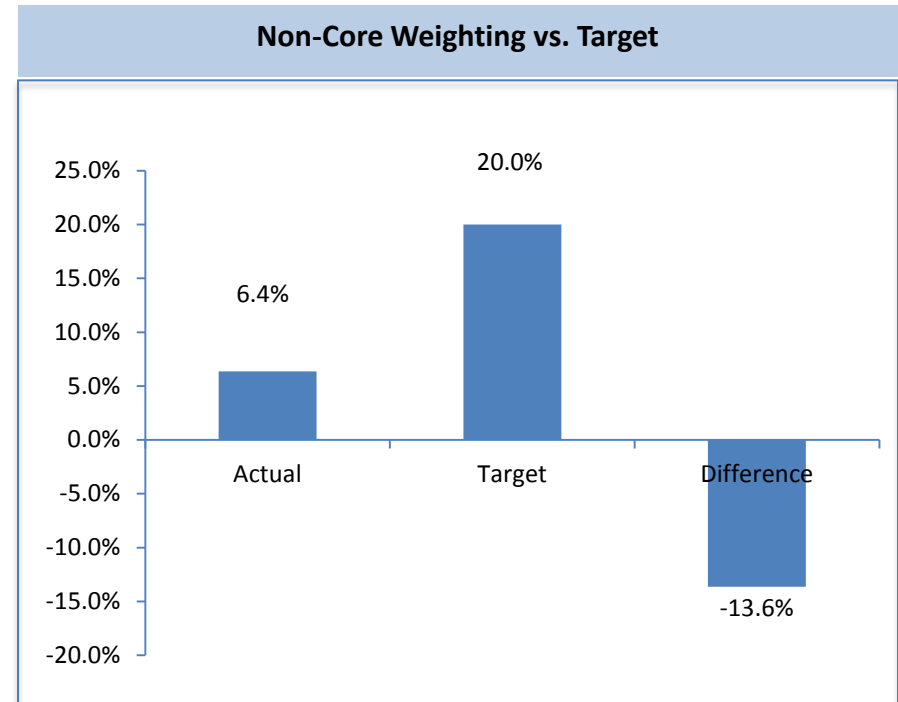
Non Core Fixed Income Asset Class Overview

- Objective
 - The purpose is to enhance total return through income and capital appreciation and provide diversification to the total investment portfolio. This allocation may be managed actively and/or passively through multiple managers in consideration of manager concentration risk.
 - The Performance Objective is to exceed the returns of a blended benchmark comprised of the Barclays US Corporate High Yield Index 50%, the JPM GBI-EM Global Diversified Index (USD Unhedged) 25%, and JPM CEMBI Broad Diversified Index 25%, net of fees over rolling five-year periods and within tracking errors as specified in the manager contracts or otherwise agreed to in writing, determined according to the specific strategies employed.

Non-Core Fixed Income Allocation

As of December 31, 2015

Mandate	Market Value	% of Total Fund
NON-CORE FIXED INCOME		
Guggenheim	\$376,403,328	1.60%
Highland	\$363,139,238	1.54%
Voya Investment Management	\$382,621,465	1.62%
Ellington Management Group	\$379,284,476	1.61%
TOTAL	\$1,501,448,507	6.37%



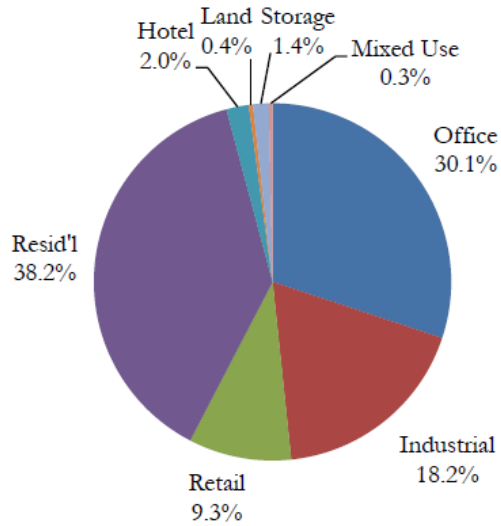
Real Estate

Real Estate Asset Class Overview

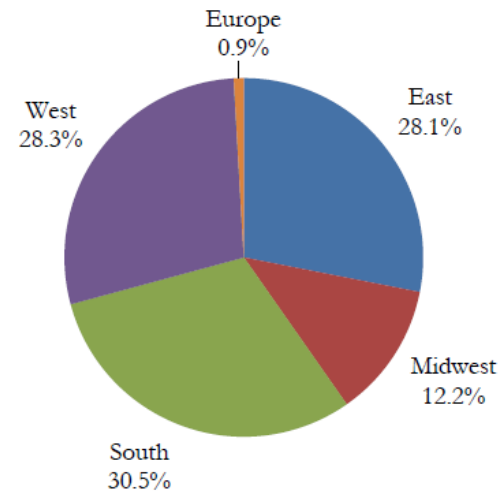
- Objective
 - To enhance total return and provide diversification to the overall investment portfolio.
 - Due to the illiquid and cyclical nature of the real estate asset class, Staff and the Real Estate Investment Consultant recommend that the target allocation be invested over a multi-year period in order to avoid considerable vintage year risks.
- Performance Objective
 - Long term performance objective is a real rate of return (adjusted for inflation) of five percent (5%) net of investment management fees.
 - The real estate portfolio is expected to generate returns, net of all fees and expenses, in excess of their respective indices, over rolling five year investment time horizons.

Real Estate Portfolio Diversification

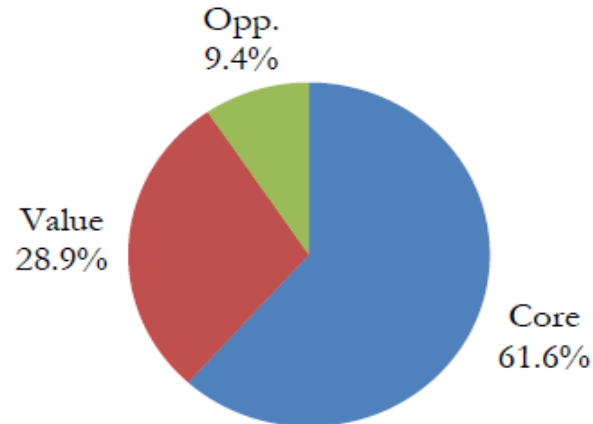
Property Type Diversification Based on Market Value



Geographic Diversification Based on Market Value



Sector Diversification Based on Market Value



Real Return

Real Return Asset Class Overview

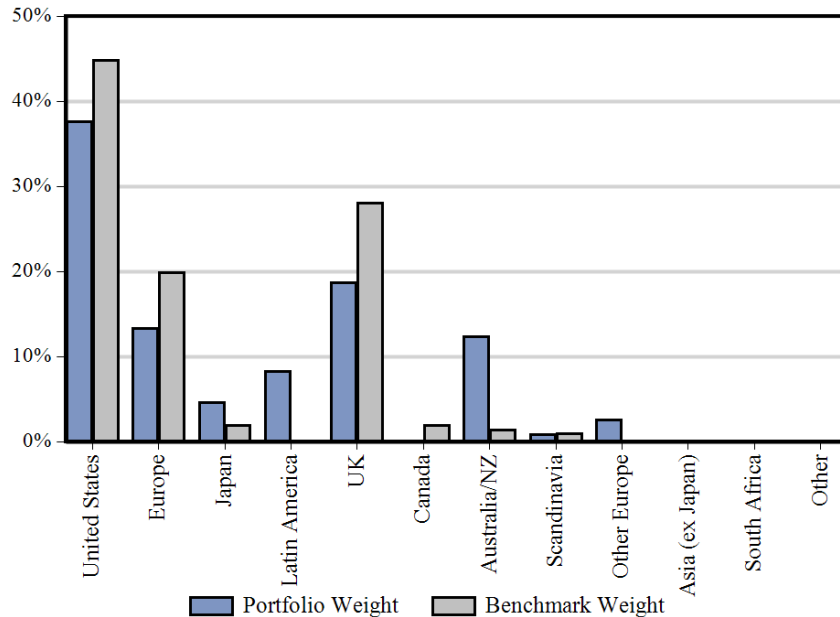
Global Linkers

- Objective
 - Purpose is to enhance total return and provide diversification and hedge against inflation risks to the overall investment portfolio.
 - Performance objective is to exceed the Barclay's Capital World Government Inflation-Linked Bond Index Unhedged in US Dollars net of fees.
- Investment Philosophy – Colchester
 - Colchester has a value-oriented philosophy. The firm believes that investment should be valued in terms of the income they will generate in real terms.
 - Seek to add value through high quality global sovereign bonds providing the highest real yields.
 - Benefits of specialization and unique use of smaller markets increase diversity and add potentially higher return opportunities.

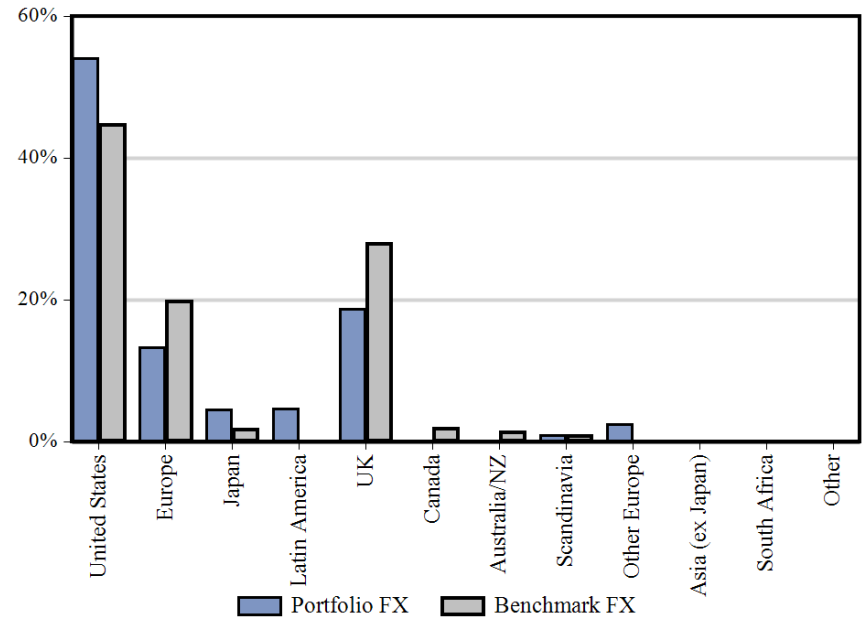
Real Return Allocation

December 2015

Country Exposure (%)



Currency Exposure (%)



*Source: Colchester

1. Barclays World Government Inflation-Linked Bond Index USD Unhedged
2. TMRS inception date Feb. 1, 2011
3. Annualized returns since inception

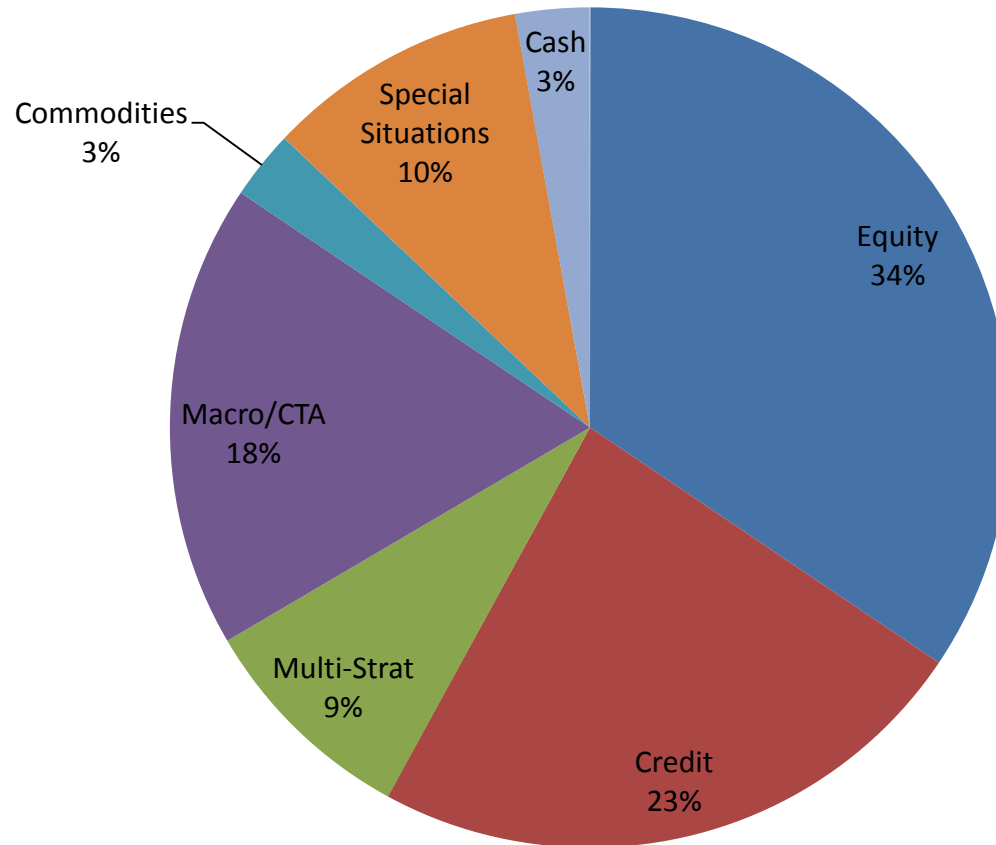
Absolute Return

Absolute Return Asset Class Overview

- Objective
 - Purpose is to diversify equity and credit market risk by targeting hedge fund return streams that are independent of the directionality of the broad stock and bond markets. The ARS portfolio will be invested in a wide variety of hedge fund strategies, with specific constraints on overall portfolio risk and individual manager exposure.
 - Performance objective is to exceed the benchmark, defined as the HFRI Fund of Funds Index, net of fees, and to earn in excess of cash (90-day Libor) plus 5% on an ongoing rolling 5-year period.
- Investment Philosophy
 - Predicated on manager skill in:
 - Rotating (long/short trading) market factors based on valuation
 - Navigating less liquid, non public and opaque markets
 - Navigating special situations
 - Predicting and capturing market trends
 - Accordingly, ARS is not an “asset class” (or market sector)

Current BAAM Allocation (Strategy Exposures)

Aggregated Manager Exposures



Source: BAAM

Private Equity

Private Equity Asset Class

Asset Class Overview

- **Objective**

- The primary objective is to enhance the total return of the overall investment portfolio, and secondarily to provide diversification. Private Equity investments are commingled funds structured as limited partnerships with capital commitments that are drawn down over time based on manager discretion. Potential distributions are made as a fund matures and investments are typically realized over an 8-12 year horizon.
- The long term policy objective is to meet or exceed the Russell 3000 + 3.00% over periods of five years or greater.

- **Investment Philosophy**

- Manager selection is critical, and managers add value through:
 - Reducing agency conflicts and aligning equity holder/executive incentives
 - Investment structuring and balance sheet management
 - Deep sector experience and creating operating efficiencies
 - Navigating non-public information and capturing illiquidity premia
- *Due to the illiquid nature of the Private Equity asset class, the target allocation will be invested over a multi-year period in order to avoid considerable vintage year risks.*

Private Equity Allocation

Figure 1 : Private Equity Strategy Diversification by Commitment

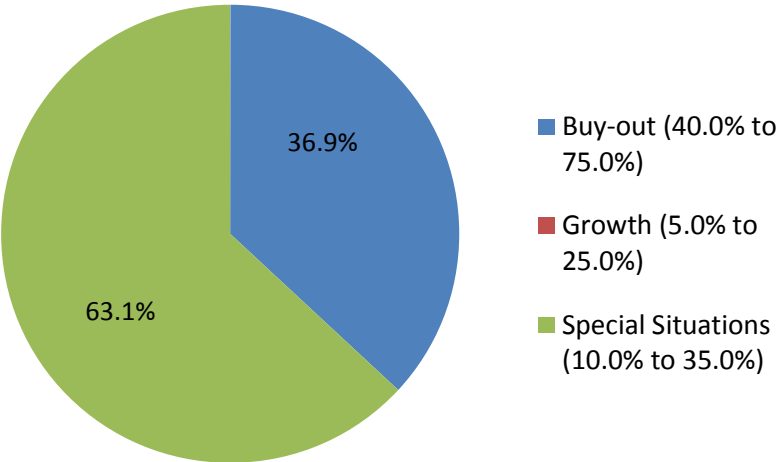
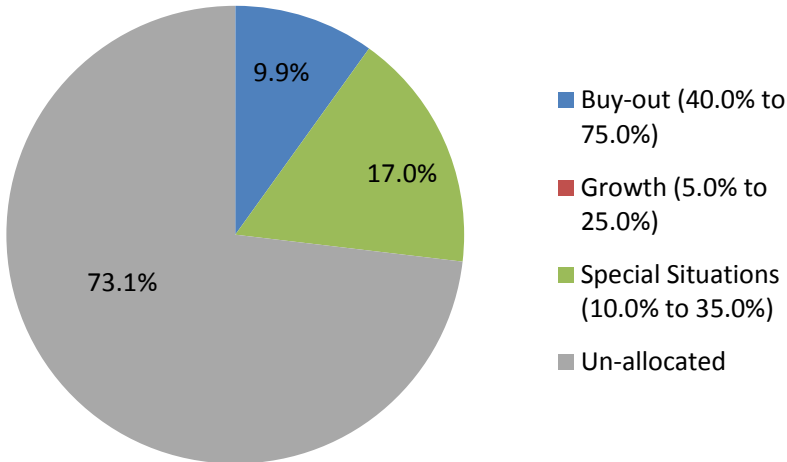


Figure 2 : Private Equity Target Diversification



Policy Strategy Range

Control/Buy-out	40.0% to 75.0%
Venture/Growth/Minority	5.0% to 25.0%
Special Situations/Opportunistic	10.0% to 35.0%

NOTE: Percentages may not be exact due to rounding

Private Equity Allocation

Figure 3: Private Equity Manager Diversification by Commitment

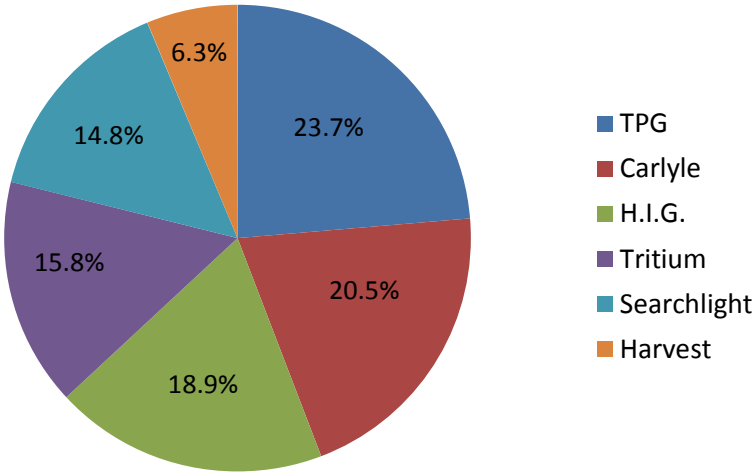
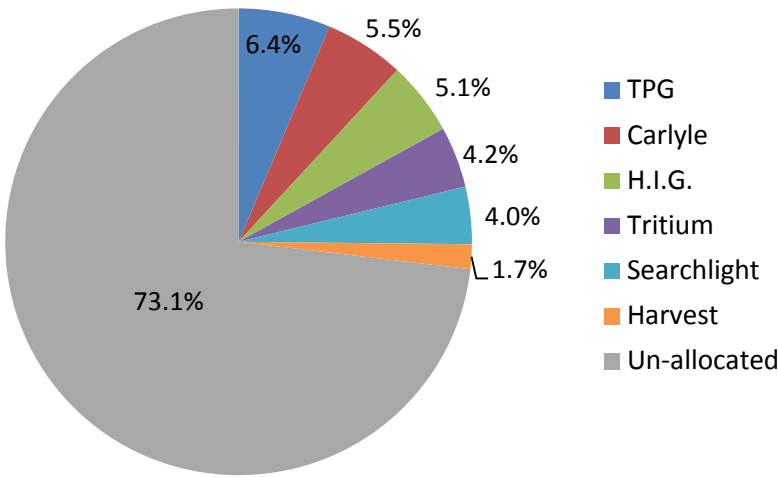


Figure 4 : Private Equity Target Manager Diversification



Policy Guidelines

No more than 35% with any one investment manager
No more than 25% in any one investment vehicle

NOTE: Percentages may not be exact due to rounding

Compliance

Compliance Overview

- IPS Objectives
 - The primary objective of Compliance is to implement a detailed compliance program which uses a combination of daily, weekly and monthly testing of all testable parameters of the Investment Policy Statement and all Manager guidelines at the Manager, asset class and total fund level, as appropriate.
 - Testing may be completed either through systematic resources (automated custodial compliance) or manually if necessary.
 - Compliance personnel shall create and present a quarterly report to the Board with the results of the testing performed during each period.

Investment Guideline Compliance

December 2015

Policy Guidelines	Core Fixed Income	Non-Core Fixed Income	Real Return	Domestic Equities	Global Equities
Credit Quality	✓	✓	✓	✓	✓
Liquidity/Cash Management	✓	✓	✓	✓	✓
Permissible/Prohibited Investments	✓	✓	✓	✓	✓
Concentration Risk	✓	✓	✓	✓	✓
Country/Region & Currency	✓	✓	✓	✓	✓
Issue/Issuer	✓	✓	✓	✓	✓
Sector & Asset Type	✓	✓	✓	✓	✓
Interest Rate Risk	✓	✓	✓	N/A	N/A
Spread Risk	✓	✓	✓	N/A	N/A

- 273 separate compliance tests were run on TMRS portfolios as of December 31, 2015. There were no active violations and all funds were in compliance with TMRS guidelines.

Risk Management

Risk Management Overview September 2015

- Objective
 - Identification, evaluation and management of all risks related to investment results.
- Responsibilities
 - Defining the policy and strategy for investment risk management
 - Building a risk aware culture within the organization
 - Analytical tools for investment risk management
 - Reporting on investment risk to the Board
- Risk Report: Q3 2015
 - One year outlook market volatility is still a lot lower than long term expectations
 - Forward looking Tracking Error is 1.52%, with 1.08% due to pending policy allocations

QUESTIONS?